

# Unit 6 REVIEW: Linear and Exponential Sequences

NAME: \_\_\_\_\_

**Directions: Use the following sequence to answer questions 1-6.**

**1, 4, 16, 64**

1) What are the next four terms of the sequence.

2) Describe how you go from one term of the sequence to the next.

3) Is this sequence ARITHMETIC or GEOMETRIC? How do you know?

4) What is the RECURSIVE formula for the sequence?

5) What is the EXPLICIT formula for the sequence?

6) What is the 12<sup>th</sup> term of the sequence?

**Use the following information to answer questions #7-11.**

**Mr. Brust and Mr. Bean are having a competition to raise funds for their favorite charity, MATH TEACHERS NERD SOCIETY. However, they both of different approaches.**

**MR. BRUST**

**He is going to start with \$2 and double that amount each month.**

**MR. BEAN**

**He is going to start with \$800, and add \$1200 each month.**

7) What are the first 5 terms in Mr. Brust's sequence?

8) What are the first 5 terms in Mr. Bean's sequence?

9) What's the explicit formula for Mr. Brust's sequence?

10) What's the explicit formula for Mr. Bean's sequence?

11) Who will have more money after one year? Explain how you know.

**Directions: Use the following sequence to answer questions 12-16.**

**123, 109, 95, 81**

12) Is the sequence geometric or arithmetic? Why?

13) What is the recursive formula for this sequence?

14) What is the explicit formula for this sequence?

15) What's the 25<sup>th</sup> term of the sequence?

16) Describe what the graph will look like using complete sentences.

**Directions: Use the following sequence to answer questions 17-21.**

**$\frac{4}{3}, 4, 12, 36$**

17) Is the sequence geometric or arithmetic? Why?

18) What is the recursive formula for this sequence?

19) What is the explicit formula for this sequence?

20) What's the 10<sup>th</sup> term of the sequence?

21) Describe what the graph will look like using complete sentences.

**Directions: Solve the system.**

37) 
$$\begin{aligned} 4x - 3y &= 3 \\ -4x + 6y &= 24 \end{aligned}$$

**Find x.**

38) 4, 6, 8, 12, 4, x. The mean of the data is 8.

**PERFORMANCE TASK**

Beanie the Genie appears in front of Mr. Brust and Mr. Kelly with an offer to GET RICH! He tells them they must choose between two options. **OPTION 1:** Day One, Beanie the Genie will give them \$5,000 and every day after that he will increase the amount by \$500 more. They can keep that pattern going until the day they decide to take the cash and run. So if they stop after two days they would have made \$5,500. **OPTION 2:** Day One, Beanie the Genie will give them 1 cent (\$0.01). Every day he will double the amount of the previous day until they decide to take the money and run.

Which option should Kelly and Brust choose? Explain why with complete sentences and models. How many days should they wait? Is there any circumstance that they should take the other offer?

